APHIS Info Sheet
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Veterinary Services
Centers for Epidemiology and Animal Health
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The Use of Growth-Promoting Implants in U.S. Feedlots

Growth-promoting implants have been used to enhance beef production for many years. Typically, the small hormone-impregnated pellets used are designed for slow, sustained release of active ingredients. Implants are administered under the skin midway between the tip and base of the back of the ear.

The U.S. Food and Drug Administration approves and regulates the use of all growth-promoting implants. Implants are designed and approved for specific ages, sex, and stages of production in cattle. The use of implants enables producers to cost effectively improve animal growth rates, feed efficiencies, and lean muscle mass. Implanting cattle increases their rate of gain from 15 to 20 percent and improves feed efficiency from 8 to 12 percent.[a] In general, implanting cattle adds another $30 to $67 per head.[b] However, implants can have negative effects, including increased occurrence of rectal and vaginal prolapses, buller steer syndrome, and decreased marbling scores and tenderness of the end product.

Using data collected during the USDA's National Animal Health Monitoring System's Feedlot 2011 study, this information sheet characterizes the use of growth-promoting implants in U.S. feedlots with a capacity of 1,000 or more head located in 12 States.[1] These feedlots accounted for 82.1 percent of the January 1, 2011, inventory in all U.S. feedlots and 2.8 percent of all feedlots.

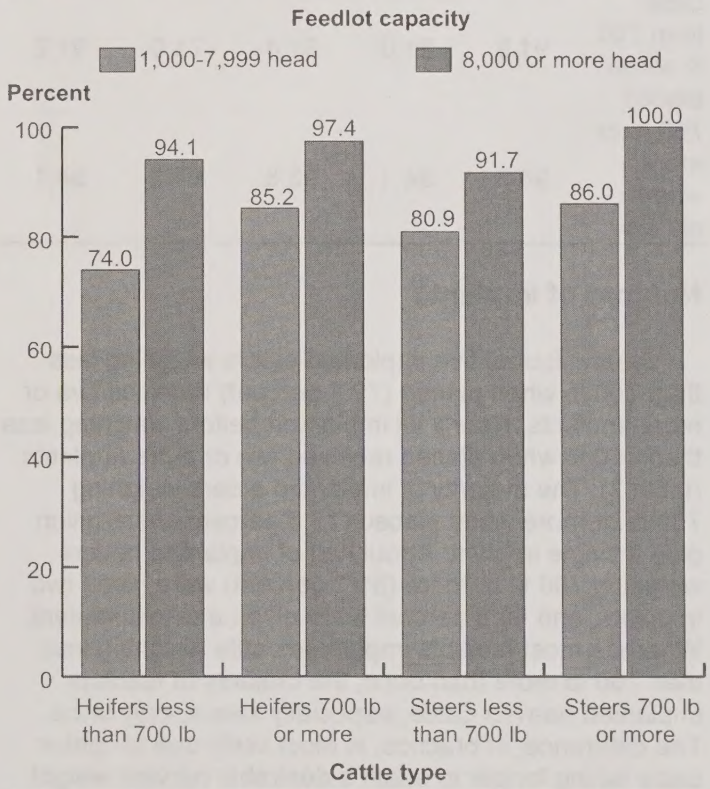
Feedlot percentages (heifers)

A lower percentage of feedlots implanted heifers weighing less than 700 lb when placed than implanted heifers weighing more than 700 lb when placed (80.8 and 89.5 percent, respectively). About two-thirds of feedlots with a capacity of 1,000 to 7,999 head (74.0 percent) implanted heifers less than 700 lb when placed compared with nearly all feedlots with a capacity of 8,000 or more head (94.1 percent). Similarly, a lower percentage of feedlots with a capacity of 1,000 to 7,999 head (85.2 percent) implanted heifers more than 700 lb when placed than feedlots with a capacity of 8,000 or more head (97.4 percent) [see figure].

Feedlot percentages (steers)

A higher percentage of feedlots implanted steers less than 700 lb when placed than steers 700 lb or more when placed (90.4 and 84.3 percent, respectively). A lower percentage of feedlots with a capacity of 1,000 to 7,999 head implanted steers less than 700 lb compared with feedlots with a capacity of 8,000 or more head (80.9 and 91.7 percent, respectively). Similarly, large feedlots were more likely to implant steers weighing 700 lb or more when placed compared with feedlots with capacity of 1,000 to 7,999 head (100.0 and 86.0 percent, respectively).

Percentage of feedlots that gave cattle any implants for growth promotion, by cattle type and by feedlot capacity



[1] Arizona, California, Colorado, Idaho, Iowa, Kansas, Nebraska, New Mexico, Oklahoma, South Dakota, Texas, Washington.

Cattle percentages (heifers and steers)

Regardless of cattle weight or feedlot capacity, about 90 percent of heifers and steers were implanted at least once (table 1).

Table 1. From time of placement until marketing, percentage of heifers and steers given any implants for growth promotion, by cattle type, feedlot capacity, and region

	Feedlot capacity (number head)		Region		
	1,000–7,999	8,000 or more	Central	Other	All feedlots
Cattle type	Pct.	Pct.	Pct.	Pct.	Pct.
Heifers					
Less than 700 lb when placed	89.5	94.8	99.0	52.1	94.3
700 lb or more when placed	92.4	94.9	95.4	91.1	94.7
Steers					
Less than 700 lb when placed	91.9	91.0	97.4	71.0	91.2
700 lb or more when placed	94.3	94.1	93.8	95.3	94.1

Number of implants

Nearly four of five implanted steers weighing less than 700 lb when placed (79.8 percent) received two or more implants. Nearly all implanted heifers weighing less than 700 lb when placed received two or more implants (table 2). The majority of implanted steers weighing 700 lb or more when placed (77.8 percent) were given only a single implant. About half of implanted heifers weighing 700 lb or more (51.2 percent) were given two implants, and 48.8 percent were given a single implant. Whereas most feedlots implanted cattle weighing less than 700 lb more than once, the majority of feedlots implanted heavier cattle, especially steers, only once. The difference, in practice, is most likely due to lighter cattle taking longer to attain a desirable harvest weight than heavier cattle.

Table 2. Percentage of implanted steers and heifers weighing less than 700 lb when placed, by number of implants given, feedlot capacity, and region

	Feedlot capacity (number head)		Region		
	1,000–7,999	8,000 or more	Central	Other	All feedlots
Number of implants	Pct.	Pct.	Pct.	Pct.	Pct.
Heifers less than 700 lb when placed					
1	10.0	0.4	0.8	12.6	1.4
2	87.0	96.9	96.6	82.4	95.8
3 or more	3.0	2.7	2.6	5.0	2.7
Total	100.0	100.0	100.0	100.0	100.0
Steers less than 700 lb when placed					
1	18.2	20.5	23.0	7.8	20.2
2	73.1	61.2	57.5	86.1	62.7
3 or more	8.6	18.3	19.6	6.0	17.1
Total	100.0	100.0	100.0	100.0	100.0

Product usage

Revalor® was the product most commonly used by feedlots that implanted any steers just once (71.7 percent of feedlots); feedlots that implanted any steers two or more times* (57.9 percent); feedlots that implanted any heifers only once (48.3 percent); and feedlots that implanted any heifers two or more times* (47.6 percent).

References

a. http://www.fda.gov/AnimalVeterinary/SafetyHealth/ProductSafetyInformation/ucm055436.htm

b. Preston RL. 1999. Hormone containing growth promoting implants in farmed livestock. *Advanced Drug DeliveryReviews*.

c. Duckett SK, Owens FN, Andrae JG. 1997. Effects of implants on performance and carcass traits of feedlot steers and heifers. In: Symposium: Impact of implants on performance and carcass value of beef cattle. Oklahoma State University, Stillwater, OK, P-957.

*Terminal implant.

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